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Tayassu pecari.

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Tayassu Fischer, 1814

Tayassu Fischer, 1814:284. Type species *Tayassu pecari* Fischer, 1814:285, by position precedence (not *Sus tajacu* Linnaeus, 1758:50).

Docotyles G. Cuvier, 1817:287. Type species *Dicotyles torquatus* Cuvier, 1817:237 (=*Tayassu tajacu*), by position precedence.

Notophorus Fischer, 1817:373, a renaming of *Tayassu* Fischer, 1814.

Adenonotus Brookes, 1828:11, a renaming of *Tayassu* Fischer, 1814.

Pecari Reichenbach, 1835:1, as subgenus. Type species *Sus torquatus* (Cuvier, 1817).

Olidosus Merriam, 1901:120, as subgenus. Type species *Docotyles albirostris* (Illiger, 1815).

CONTEXT AND CONTENT. Order Artiodactyla, Suborder Suina, Superfamily Suoidea, Family Tayassuidae, Subfamily Tayassuinae. The genus *Tayassu* contains two known species. No attempt is made to list in the above synonymy the numerous variations in the spelling of *Tayassu* Fischer and *Dicotyles* Cuvier. Cabrera (1961:315) provided a partial listing.

Tayassu pecari (Link, 1795)

White-lipped Peccary

Sus pecari Link, 1795:104. Type locality Cayenne, French Guiana (see Hershkovitz, 1963:86, for both species selection and type locality).

Tayassu pecari Fischer, 1814:285, first use of name combination.

Sus albirostris Illiger, 1815:108. Type locality Paraguay.

Dicotyles labiatus G. Cuvier, 1817:238. Type locality South America.

CONTEXT AND CONTENT. Context noted in generic and species summaries. The following five subspecies usually are recognized:

T. P. aequatoris (Lönnberg, 1921:56). Type locality near Gualea, Pichincha, Ecuador.

T. p. beebei Anthony, 1921:26. Type locality Kartabo, Guyana.

T. p. pecari (Link, 1795), see above (*albirostris* Illiger and *labiatus* Cuvier are synonyms).

T. p. ringens Merriam, 1901:121. Type locality Apazote, near Yohaltún, Campeche.

T. p. spiradens Goldman, 1912:189. Type locality Sipurio, Río Sixaola, Limón, Costa Rica (defined by Hall, 1981:1083).

DIAGNOSIS. The coat of *Tayassu pecari* is distinct in adults, dark brown to black with white-cream in the inguinal and pelvic regions, and on the throat and distal rostrum (Fig. 1). Bristles have a shorter, paler base than in *Catagonus wagneri*, followed by dark brown to black on the remaining three-quarters of the shaft. *Tayassu tajacu* lacks this pale basal portion entirely (Wetzel, 1977). *T. pecari* also possesses a single, medial dewclaw on the posterior side of the hind foot, that distinguishes it from *C. wagneri* (Mayer and Brandt, 1982; Wetzel, 1977). Mean and range of total length, length of tail, hind foot, and ear, shoulder height, and body mass are larger in *T. pecari* than in *T. tajacu* but, except for total length, smaller than in *C. wagneri*. The largest known individuals of *T. pecari* are longer than those of *C. wagneri*, but mean total lengths are about the same (Mayer and Brandt, 1982). *T. pecar* also has a proportionately and absolutely smaller head than *Catagonus* (Wetzel, 1977), and proportionately longer legs and a more erect head carriage than in *T. tajacu* (Herring, 1971). The cranium of the white-lipped peccary (Fig. 2) differs from that of the other peccaries by: longer narial notch acuminate posteriorly; rostrum slightly concave, dorsum of rostrum flat; infraorbital foramen more posteriorly located under the zygomatic shelf, infraorbital opening narrow or slitlike; capacity of braincase larger (Herring, 1971; Wetzel, 1977; Woodburne, 1968).

GENERAL CHARACTERS. *Tayassu pecari* is a small to medium-sized ungulate, piglike in body form. Legs are long and slim with small hooves. The tail is reduced and the ears ovate and erect. Upper canines are directed downward. The snout is elongate with a nearly naked terminal disc in which the nostrils are located (Nowak and Paradiso, 1983). This terminal disc is mobile and supported by cartilage. The front feet have four digits, the hind feet three. The third and fourth metapodials are fused proximally. There are one inguinal pair and one abdominal pair of mammae (Mayer and Brandt, 1982). The stomach is two chambered with two diverticula lateral to the main chamber. A scent gland is located in the posterior middorsal region. This gland measured 99 mm long and 55 mm

FIG. 1. Hunter-killed adult (top) and captive juvenile (bottom) female *Tayassu pecari* from the Chaco Boreal of Paraguay, illustrating the distinctive adult and immature coat patterns of this species. Photographs by John J. Mayer and Ralph M. Wetzel.

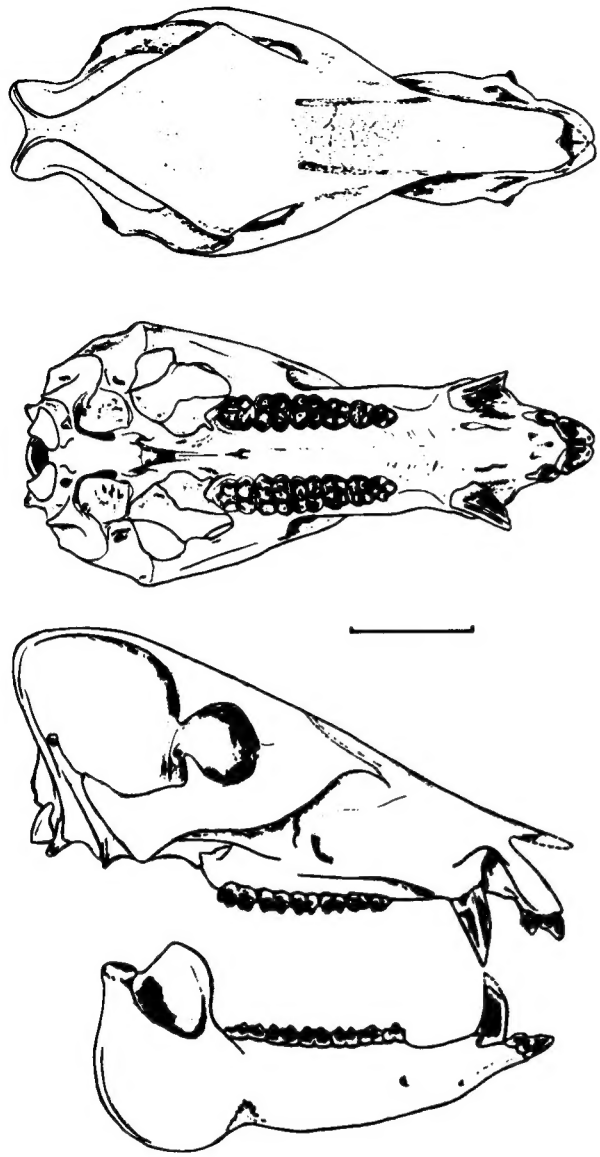

FIG. 2. Dorsal, ventral, and lateral views of cranium, and lateral view of lower jaw of *Tayassu pecari*, UCONN 19497, adult male, from 28 km E Agua Dulce, Depto. Chaco, Paraguay. Scale represents 50 mm. Illustration by John J. Mayer.

FIG. 3. The approximate distribution of the recognized subspecies of the white-lipped peccary (*Tayassu pecari*): 1, *T. p. ringens*; 2, *T. p. spiradens*; 3, *T. p. equatorius*; 4, *T. p. beebei*; and 5, *T. p. pecari*. Marginal records: Argentina—Entre Rios, no other data (BMNH); Santa Fe, Colonia Moscovi (Mug. Prov. Cien. Nat. Santa Fe); Brazil—Rio Grande do Sul, Colonie Mundo Novo (BMNH); México: Oaxaca—Sierra Mandre, N. Y. Zanateyec; Veracruz—20km E Jesús Carranza (Hall, 1981:1083). Illustration by Jean B. Coleman.

wide in a adult female *T. pecari* from Paraguay. The scent gland exits through an external nipple located on the back about 120 mm above the base of the tail in adults (Sowls, 1984). Ranges of external body measurements (in mm) reported for adult *T. pecari* of both sexes are: total length, 905 to 1,390; tail length, 10 to 65; length of hindfoot, 165 to 250; length of ear, 64 to 90; height at shoulder, 400 to 530; body mass ranges from 25 to 40 kg (Husson, 1978; Idiaquez 1978; Mayer and Brandt, 1982; Sowls, 1984). Pelage is bristly. These coarse hairs range from 54 to 115 mm long middorsally and 28 to 60 mm laterally (Mayer and Brandt, 1982). Means and ranges (in parentheses) of skull measurements (in mm) in adults (n = 41) of both sexes combined are (Woodburne, 1968): condylobasal length, 234 (223 to 270); zygomatic breadth, 117 (106 to 125); mandibular length, 197 (180 to 218); length of upper molariform toothrow, 85 (78 to 93). The dental formula is i 2/3, c 1/1, p 3/3, m 3/3, total 38. Two male white-lipped peccary fetuses from the same female collected in western Paraguay had the following measurements (in mm): crown-rump length, 362, 366; total length, 393, 392; tail length, 25, 22; hindfoot length, 102, 103; ear length, 37, 35; both weighed 1,000 g. Both fetuses were fully haired and appeared to be near term (Mayer and Brandt, 1982). The neonate *T. pecari* is mixed red-brown, black, and cream, with a black middorsal stripe and white undersides, legs, and rostrum as in the adult. The coat of the white-lipped peccary darkens during the first year, but does not change to adult coloration until the second year when the animal is about one-third grown (Mayer and Brandt, 1982; Sowls, 1984).

The sexes of *T. pecari* are not distinct morphologically. Mayer and Brandt (1982) found no significant differences between the sexes in total length, tail length, length of hindfoot and length of ear for the species. Based on a set of 65 cranial, mandibular, and dental measurements, Woodburne (1968) found that male white-lipped peccaries average larger than females in cross-sectional width and range larger in the lengths of both upper and lower canines. Woodburne (1968) also stated without elaboration that the crania of this species showed little variation, other than general robustness, that definitely was correlated with sex. Herring (1971), from comparison of 50 skull measurements from five male and five female *T. pecari*, determined that females had significantly larger braincase widths and widths of the nuchal crest. Herring concluded, however, that there were no obvious sexually dimorphic cranial characters in this species.

DISTRIBUTION. The geographic range of *T. pecari* (Fig. 3) includes the states of Veracruz and Oaxaca in southern Mexico (Dalquest, 1949; Hall, 1981), south to Esmeraldas and Pichincha in Ecuador on the Pacific side of the Andes (Baker, 1974), and Entre Rios in Argentina east of the Andes (Mayer and Brandt, 1982). This species overlaps the entire range of the Chacoan peccary in the Gran Chaco of central South America and most of the range of the collared peccary excluding that portion north of the state of Veracruz, Mexico (Mayer and Brandt, 1982). The white-lipped peccary was introduced into Cuba in 1930 (Varona, 1974).

FOSSIL RECORD. The oldest known records of *Tayassu* are from the late Pleistocene to early Recent of South America (Paula Couto, 1979; Woodburne, 1968). No apparent direct ancestral forms of this genus have been found in Pliocene and Pleistocene deposits of North America. Woodburne (1968) concluded from these data that *Tayassu* probably underwent most of its evo-

lution in Central and South America. Woodburne (1968) considered the lineage of fossil tayassuids that ultimately produced *T. pecari* broadly associated with *Mylohyus* and "*Platygonus*" (*Brasiliochoerus*) *stenocephalus*. The descent to this line has been traced further back through *Prosthennops niobrarensis* to *Dyseohyus*. Wetzel (1977) stated that additional specimens, not seen by Woodburne, suggest that *T. pecari* originated in South America, probably either in the highlands of Brazil or during a period of isolation in a forest center in the Amazon basin.

FORM AND FUNCTION. From comparison of skulls of *T. pecari* and *T. tajacu*, Herring (1971) proposed that the cranial and dental features of *T. pecari* might be associated with feeding on soft moist vegetation and rooting in soft terrain characteristic of the mesic forest habitats occupied by the species. Morphological characters associated with less tough foods included smaller incisors, variable position of the incisors relative to the cheek teeth, and reduced hypsodonty of the premolars. Features related to less stressful rooting included a large narial notch suggestive of a more flexible rhinarium and associated structures, the lack of protective grooves for the dorsal nasal veins, reduced area for nuchal muscle attachment in the occipital region, and the relatively short moment arm of the dorsal extensor muscles of the occiput (Herring, 1971).

Kiltie (1981*a*) proposed that the interlocking canines in white-lipped peccaries may function to resist forces that would dislocate their lower jaws when biting on hard seeds of palms (Palmae) and arborescent legumes (Leguminosae). In contrast to Herring's (1971) proposal, Kiltie (1981*a*) stated that other aspects of the cranial anatomy of these animals also appear to reflect use of highly resistant foods.

Kiltie (1982) used a lever model of jaw action to show that the maximum bite force of white-lipped peccaries should be at least 1.3 times that of collared peccaries on food items of a specific size. This prediction was consistent with measured resistances of seeds and nuts that the two species feed upon. This difference in part may allow the coexistence of both of these species in Neotropical rain forests (Kiltie, 1982).

Herring (1985) showed that the crushing type of mastication in *T. pecari* was associated with proportionately smaller occlusal areas of the toothrows and larger condylar areas of the temporomandibular joints of the skull. *T. tajacu* had similarly correlated morphological features with the same style of mastication as in *T. pecari*. In contrast, *C. wagneri* was shown to have larger occlusal areas and a reduced condylar area associated with a grinding style of mastication (Herring, 1985).

In a biometric study of suture fusion and skull growth, Herring (1974) scored for degrees of fusion 41 sutures or segments of sutures from 34 *T. pecari* and 56 *T. tajacu* crania. The two species were found to have similar fusion sequences. Several of the disparities that were noted in the fusion sequences were associated with differences in adult cranial proportions. Sutures closing earlier in *T. pecari* than in *T. tajacu* included: interpremaxillary, interfrontal, dorsal and lateral frontoparietal, parietosquamosal, medial jugosquamosal, nasofrontal, internasal, premaxillomaxillary, and premaxillonasal (Herring, 1974). These included most of the sutures contributing to length and width of both the vault and the snout of the cranium. As an adult, *T. pecari* has a cranium with a shorter vault and narrower snout than in *T. tajacu* (Herring, 1974).

Wetzel (1977), using the same method as Herring (1974), compared the sequence of cranial suture fusion of the three species of peccaries only from Paraguay to reduce possible effects of geographic variation on suture closure. Of 22 sutures examined, *T. pecari* had 13 sutures that closed earlier and 8 that closed later than in *C. wagneri*, and 9 sutures that closed earlier and 8 that closed later than in *T. tajacu*.

ONTOGENY AND REPRODUCTION. The gestation periods of three captive female *T. pecari* were 156, 157 and 162 days (Roots, 1966). Modal litter size in this species is two (Asdell, 1964; Haltenorth, 1963). Of 10 litters born at the Berlin Zoo between 1928 and 1937, nine consisted of twins (Frädrich, 1968). The remaining litter was composed of a single neonate (H. Frädrich, pers. comm.). Litter sizes from the London Zoo (n = 2) and the Dudley Zoo (n = 3) all were reported to consist of twins (Roots, 1966; Zuckerman, 1953). In Mexico and Panama, litters of the white-lipped peccary usually consist of two and occasionally three young (Leopold, 1959; Mendez, 1970). Litters of two neonates or fetuses were reported for this species from the Mato Grosso in Brazil and the Chaco Boreal in Paraguay (Mayer and Brandt, 1982; Miller, 1930). Three litters of fetal white-lipped peccaries collected in Suriname were composed of two, two, and three embryos (Husson, 1978.

In Mexico and Suriname, the white-lipped peccary produces litters year-round (Husson, 1978; Leopold, 1959). Idiaquez (1978) noted only one annual breeding season for this species in Honduras. Kiltie and Terborgh (1983) observed mating activity in this species in Amazonian Perú during July and August. This species had two breeding seasons (spring and autumn) annually in captivity (Roots, 1966).

Estrus was noted in captivity by an increase in attention paid to the female by the male, a marked increase in scent gland grooming by both sexes, and the onset of receptivity in the female (Roots, 1966). The estrous periods never were observed to last longer than 2 days. Receptivity occurred at both 3 and 7 weeks after parturition (Roots, 1966).

The maximum longevity recorded for the white-lipped peccary in captivity was 13 years, 2 months, and 22 days (Crandall, 1964).

ECOLOGY. The white-lipped peccary is found primarily in the humid tropical forests of Central and South America (Mayer and Brandt, 1982; Sowls, 1984). In general, herds of this species require large tracts of virgin or near-primitive forest to survive (Sowls, 1984). Its range, however, also includes the dry savannas of Venezuela and the Gran Chaco of Paraguay (Handley, 1976; Mayer and Brandt, 1982; Wetzxel and Lovett, 1974). White-lipped peccary herds rarely move far from water sources (Donkin, 1985). Husson (1978) stated that they concentrate along rivers and forest creeks in Suriname during the dry season. Sowls (1984) noted that in the dry Paraguayan Chaco, travel routes of these herds always were near desert waterholes. Over the range of the white-lipped peccary annual rainfall ranges from 83 cm in the Chaco Boreal of Paraguay to 323 cm in Colon, Panama (calculated from Sowls, 1984). The altitudinal range of this species is from sealevel in Costa Riva (Carr, 1973) to over 1,900 m on the eastern slopes of the Andes in Peru (Osgood, 1914).

Shaller (1983) estimated the density of the white-lipped peccary on a 70-km^2 area of a ranch in the mesic Pantanal of the Mato Grosso of Brazil to be 1.6 individuals/km^2. The density of this species in the xeric thorn forest of the western Gran Chaco of Paraguay was 1.1 animals/km^2 as estimated by use of strip censuses (Mayer and Brandt, 1982).

As with other members of the Tayassuidae, the white-lipped peccary consumes both plant and animal matter. Frädrich (1968) stated that the white-lipped peccary consumes more animal matter than the collared peccary. Kiltie (1981*b*), however, found no striking qualitative or quantitative differences between stomach contents of the two species in Perú. Anecdotal accounts of food-habits, not based on examination of stomach contents, indicate that white-lipped peccaries consume fruit (Angiospermae), leaves (Tracheophyta), roots (Tracheophyta), seeds (Spermopsida), mushrooms (Basidiomycetes), worms (Annelida), adult and larval insects (Insecta), frogs (Anura), snakes (Serpentes), lizards (Lacertilia), eggs of birds (Aves) and turtles (Chelonia), and carrion (Alvarez del Toro, 1952; Husson, 1978; Idiaquez, 1978; Leopold, 1959; Mendez, 1970). Roosevelt (1920) found wild figs (*Ficus* sp.), palm nuts, and bundles of fibers in stomachs of three white-lipped peccaries from the Matto Grosso of Brazil. Husson (1978) included the seeds of *Astrocaryum vulgare* and *Attalea regia* in a list of foods eaten by this peccary in Suriname. Carr (1973) reported that white-lipped peccaries prey on eggs and young of green turtles (*Chelonia mydas*) on the beaches of Tortuguero, Costa Rica. Enders (1935) found that white-lipped peccaries on Barro Colorado Island feed on *Pancium maximum, Cynodon dactyon, Paspalum* sp., stalk bases of *Heliconia* sp., and leaf bases and erect stems of the *Dieffenbachia oerstedii*. Mayer and Brandt (1982) found fruit pods of *Acacia aroma* the predominant food item in the stomach of a white-lipped peccary from Paraguay. Sowls (1984) reported finding seeds and pods of *Prosopis* sp. in the stomach of a white-lipped peccary from Paraguay. From stomach contents of 34 white-lipped peccaries from Perú, Kiltie (1981*b*) found that plant reproductive parts composed the greatest average percent volume (61%), followed by vegetative plant parts (39%), then by animal parts (trace). The plant material included fruits of *Mauritia flexuosa, Astrocaryum* sp. and *Jessenia* sp., and seeds of *Socrates* sp. and *Iriartea ventricosa*. The animal matter consisted of snail (Gastropoda) operculi, tissue from vertebrates, and parts of adult (mostly orthopterans and coleopterans) and larval invertebrates. This peccary also is reported to be a nocturnal crop-robber, depredating

fields of maize (*Zea Mays*), sweet potatoes (*Ipomoea Batatas*), manioc (*Manihot* sp.), sugar cane (*Saccharum officinarum*), and bananas (*Musa* sp.; Donkin, 1985; Husson, 1978; Idiaquez, 1978). Kiltie (1981*c*) found that white-lipped peccaries in southeastern Perú forage near bases of plant stems, along logs and exposed roots, beneath lianas, and between shrubs with dense foliage. Kiltie (1981*c*) determined that the peccaries apparently consume common palm nuts that were "scatter hoarded" near such objects by rodents. Pedophagy in this species has not been documented directly. Tooth marks at a natural mineral lick high in calcium, magnesium, and sodium in Manú National Park, Perú, may have been made by white-lipped peccaries (Emmons and Stark, 1979).

Mountain lions (*Felis concolor*) and jaguars (*Felis onca*) are the only documented nonhuman predators of the white-lipped peccary (Enders, 1935; Idiaquez, 1978; Kiltie and Terborgh, 1983; Leopold, 1959; Mendez, 1970). Donkin (1985) and Husson (1978) also included the boa constrictor (*Boa murina*) among the predators of this peccary. Herds of white-lipped peccaries reportedly can counterattack jaguars effectively (Kiltie and Terborgh, 1983; Roosevelt, 1920).

BEHAVIOR. The white-lipped peccary lives in herds that range in size from about 5 to more than 200 animals (Enders, 1935; Hall, 1981; Mayer and Brandt, 1982; Miller, 1930; Sowls, 1978). Sowls (1984) stated that a correspondent reported seeing a herd of 300 to 400 white-lipped peccaries in Brazil. Anecdotal accounts report maximum herd sizes of more than 2,000 individuals (Perry, 1970). Most estimates of herd size are in the range of 50 to 100 animals. Minimum numbers in five white-lipped peccary herds in Perú were 138, 102, 90, 90, and 110 (Kiltie and Terborgh, 1983). Smaller herds may be "satellites" of larger groups. In general, smaller herds (<50 animals) usually are found in drier habitats or in areas where hunting pressure is severe (Kiltie and Terborgh, 1983). Leopold (1959) stated that in Mexico, herd size is directly proportional to the density of populations. Kiltie and Terborgh (1983) theorized that forming large herds in this species has several benefits for foraging efficiency and defense against predators. These benefits include: (1) avoidance of searching for food in places recently visited and depleted by other conspecifics; (2) inexperienced foragers benefiting from the knowledge of experienced animals; (3) reducing the per capita probability of detection by predators; (4) a proportionate decrease in the probability of being the victim of a successful predator attack as group size increases; (5) the possibility of counterattacking the predator en masse; (6) an increased probability of detecting the predator before attack through collaborative watchfulness and warning; and (7) a possible "confusion effect" by which the predator's ability to single out a particular prey is hampered by the helter-skelter flight of many individuals (Kiltie and Terborgh, 1983). Herds are composed of both sexes and all age classes (Enders, 1935; Kiltie and Terborgh, 1983). One herd of three white-lipped peccaries on Barro Colorado Island was reported to consist of a young male, a mature female, and an old female (Enders, 1935). Kiltie and Terborgh (1983) found that jeveniles compose less than 20% of herds in Manú National Park, Perú. Alvarez del Toro (1952) reported that within herds, younger animals were in front, followed by subadults, then by the largest adults. The remainder of the herd consisted of average-sized animals. Neonates were reported always to stay next to their mothers (Alvarez del Toro, 1952). Large white-lipped peccary herds reportedly are led by an old male or female (Donkin, 1985).

White-lipped peccaries in Panama were reported to be active nocturnally (Chapman,, 1936; Mendez, 1970). Idiaquez (1978) stated that this species was crepuscular in Honduras and became more nocturnal in their forging during the full moon. Idiaquez (1978) also described the daily activity pattern of *T. pecari* as beginning at dawn, with a rest in the shade at noon, and a continuation of the movement of the herd into the afternoon and sometimes into the night during the full moon.

White-lipped peccary herds are known to travel long distances (Kiltie and Terborgh, 1983; Sowls, 1984). Herds wander so far that some observers refer to the species as being nomadic or migratory (Idiaquez, 1978; Mendez, 1970; Sowls, 1984). Kiltie (1980*b*) noted that the extreme mobility of herds of white-lipped peccaries was illustrated by their infrequent and short-lived appearances at particular places. Based on the time interval (in days) of encounters with herds in a 3-km^2 study area and the assumption that the herds traveled about 10 km/day, Kiltie and Terborgh (1983) estimated that the home range of white-lipped peccary herds in Amazonian Perú was betwen 60 and 200 km^2. Information on movement patterns of white-lipped peccary herds varies among observers and locations. On Barro Colorado Island, this species did not make trails through the underbrush, and traveled in more or less compact groups (Enders, 1935). In contrast, Chapman (1936) reported seeing a herd of at least seven white-lipped peccaries moving along a trail on Barro Colorado Island. He also noted that *T. pecari* used man-made trails on the island. Tate (1931) followed a herd for many hours in an unidentified rain forest in South America, stating that the herd moved back and forth through the woods in all directions. Mayer and Brandt (1982) noted that in Paraguay white-lipped peccaries crossed roads in single file, then formed small groups to move along trails through the thorn scrub. Kiltie and Terborgh (1983) found that white-lipped peccaries in Manú National Park, Perú, did not use particular trails regularly, but tended to move in relatively straight paths through the forest until the herd encountered areas of apparent food abundance. Sowls (1984) found that white-lipped peccary herds in the Paraguayan Chaco and southern Brazil followed the same routes on successive visits through an area.

Scent gland rubbing or grooming among white-lipped peccaries has been reported by Enders (1935), Frädrich (1967), and Sowls (1984). Enders (1935) made the general observation that on Barro Colorado Island, Panama, these peccaries groom scent glands of conspecifics more often than *T. tajacu*. Reciprocal grooming of scent glands in this species is done while two peccaries stand facing opposite directions with their sides touching. Each animal then vigorously rubs the side of its head against the hindquarters and scent gland of the other (Sowls, 1984). Grooming is not related to sex or age (Sowls, 1984). Nonreciprocal grooming also is common in the white-lipped peccary (Sowls, 1984).

Sowls (1984) noted that unlike the collared peccary which exhibits contact behavior while resting and rejoining the herd, members of white-lipped peccary herds are in close contact almost continuously. One aspect of close contact is displayed in the constant nosing by white-lipped peccaries of other members of the herd (Sowls, 1984). Nosing was not directed toward a specific part of the body of a conspecific. Sowls (1984) observed 54 such contacts in 3 h in a herd of about 60 white-lipped peccaries.

Sowls (1984) noted that face-to-face squabbles and chases were the most common types of agonistic behaviors seen among white-lipped peccaries. Aggressive vocalizations frequently were heard during face-to-face encounters. Such interactions normally ended in a quick chase or the subordinate animal slowly turning away to increase the distance from the dominant animal (Sowls, 1984). Chases involved one animal chasing another 50 to 100 m away from the herd. At that point, the pursuer broke off the chase and returned to the herd (Sowls, 1984).

Of the three species of peccaries, *T. pecari* reportedly is the most aggressive (Sowls, 1984). Kiltie (1980*b*) stated that the reputed ferocity of the species in many instances is exaggerated. In numerous encounters with white-lipped peccary herds in Manú National Park, Perú, Kiltie (1980*a*) never observed the reputed aggressive behavior of the species. Sowls (1984), however, observed white-lipped peccaries at a bait station in southern Brazil to threaten him by jumping a short distance in his direction as he approached them. However, he found that by moving rapidly toward them, threatening animals always slowly turned aside and walked away.

Sowls (1984) stated that as a dense tropical forest species, the white-lipped peccary depended greatly on vocalizations to maintain contact within a herd. Miller (1930) reported hearing constant tusk rattling and "low eerie moans" from a herd of about 200 individuals in the Matto Grosso of Brazil. Kiltie and Terborgh (1983) listed the vocalizations of *T. pecari* as: low, resonating moans made by foraging adults; strident barks and staccato clacking of jaws during squabbles; raspy bleats made by both adults and juveniles; and sharp, deep barks as alarm calls by adults. Mayer and Brandt (1982) reported that white-lipped peccaries in the Gran Chaco of Paraguay produce a multiple-impact tooth chatter or clacking, but did not present counts of the number of impacts per group of tooth clicks. Sowls (1984) classified the sounds made by this species as (1) togetherness vocalizations: low rumbles, single or multiple loud barks, tooth clickings, and whines or complaining calls; and (2) aggressive vocalizations: grumblings (a blend of many sounds) and single or multiple tooth clicks. In close feeding situations, he found that white-lipped peccaries emitted many snorts, wheezes, and other noises as the animals inhaled and exhaled.

White-lipped peccaries commonly use permanent and temporary mud wallows in the Chaco of northern Paraguay (Sowls, 1984), in the Amazon basin of Brazil (Smith, 1976), near the Río Berbice in British Guayana (Schomburgk, 1837), on Barro Colorado Island (Chapman, 1936; Enders, 1935), in the state of Chiapas in Mexico (Alvarez del Toro, 1952), and in Manú National Park in Perú (Kiltie and Terborgh, 1983). Chapman (1936) stated that this species normally used mud wallows at night. Kiltie and Terborgh (1983) found that white-lipped peccaries used the same mud wallows in Manú National Park, Perú, as the collared peccaries. Some of these wallows, however, were visited only a few times a year by the white-lipped peccaries.

GENETICS. The karyotype of the white-lipped peccary has a diploid number of 26 chromosomes. There are 13 pairs of metacentrics and submetacentrics, including the sex chromosomes (Hufty et al., 1973). Hsu and Benirschke (1974) reported the karyotype of this species as consisting of 20 meta- or submetacentric and 4 acrocentric autosomes, and acrocentric sex chromosomes. Giannoni and Ferrari (1976*a*) classified the autosomes of the white-lipped peccary as eight pairs of metacentrics, one pair of submetacentrics, one pair of telocentrics, two pairs of subtelocentrics, and both sex chromosomes as telocentrics. Because of these different descriptions, the fundamental number has been reported as 52 (Hufty et al., 1973), and 96 (Giannoni and Ferrari, 1976*a*). The DNA area for the diploid set was 150.5 μ^2, with the X-chromosome nearly 5.8% of the haploid set (Giannoni and Ferrari, 1976*a*). Analysis of G-bands for the 13 chromosome pairs of this species (Giannoni and Ferrari, 1976*b*) suggested that three chromosomes evolved from Robertsonian fusion events of pairs of theoretical ancestral chromosomes. Chromosome 6 was concluded to be the result of such a fusion event between ancestral chromosome pairs similar to chromosomes 9 and 14 of *T. tajacu* (Giannoni and Ferrari, 1976*c*), chromosome 8 from ancestral chromosomes similar to chromosomes 8 and 10 of *T. tajacu* (Giannoni and Ferrari, 1976*d*), and chromosome 2 from ancestral chromosomes similar to numbers 2 and 3 of *Sus scrofa* (Giannoni and Ferrari, 1976*e*).

Hybridization in captivity between *T. pecari* and *T. tajacu* has been recorded on three occasions in both the London Zoo (Zuckerman, 1953) and Manaus Zoo (Sowls, 1984). There are no records of hybridization between these two species in the wild (Sowls, 1984).

REMARKS. The scientific name for the white-lipped peccary incorporates both the Tupí-Guaraní name "tayasú" and the Cariban name "pecarí." Each of these names translates into English as "peccary" (Donkin, 1985). This species is commonly known in Argentina as Tayasú tanyihka ti, tanyihka ti, pecari labiado, queixo branco, queixada, and tayasú tiragua (Cabrera and Yepes, 1940; Dennler, 1939). It is locally referred to as either Tagnicate or Tâchycâtí in the Chaco of Paraguay (Wetzel, 1977). In Mexico, it is called senso and marina (Alvarez del Toro, 1952; Leopold, 1959). Juvenile reddish white-lipped peccaries are given the specific names senso colorado, cahal wamal citam, and cik citam in Mexico (Alvarez del Toro, 1952; Hunn, 1977). In Suriname, the species is called either Pingo or witlippeccarie (Husson, 1978). In Honduras, it is called jagilla, tayasu citam, baquira, pécari, and pecarí (Idiaquez, 1978). Additional common or local names for this species include: puerco de monte, bido, yann baquira, labiada, baquira cachete blanco, cafuche, cariblanco, coche de monte, chancho de monte, jabali de labios blancos, queizo branco, taitetu, tanyikati, tatabra, and waree (Mendez, 1970).

The white-lipped peccary has been described as the most important game species for the majority of neotropical hunters (Donkin, 1985). Kiltie (1980*b*) determined that white-lipped peccaries were killed by hunters in equal or greater numbers than the collared peccary in areas of the Neotropics where the two species were sympatric. A corollary was that white-lipped peccaries are almost never protected by dietary taboos among neotropical groups. Kiltie (1980*b*) noted that of the mammals commonly hunted by humans in the Neotropics, white-lipped peccaries were preferred and ranked highest in the ratio of food value (for example, protein content) to handling time (the time required to capture and consume a prey individual after the predator discovers it). In addition, the large herds formed by this peccary make multiple kills possible, allowing hunters to maximize their rate of protein capture and intake (Kiltie, 1980*b*).

Woodburne (1968), followed by Husson (1978), separated the white-lipped from the collared peccaries generically. Comparisons that added a third Recent peccary and more fossil material from South America not available to those authors, indicated congeneric status for *T. pecari* and *T. tajacu* (Wetzel, 1977). The latter comparisons used teeth, crania, metapodials, and hair. Hybridization between *T. pecari* and *T. tajacu* strengthens this position (Van Gelder, 1977). Husson (1978), invoking "type by virtual tautonymy" assigned the collared peccary to the genus *Tayassu* G. Fischer, 1814, and the white-lipped peccary to the genus *Dicotyles* G. Cuvier, 1817, a reversal of Woodburne (1968) and others who used these genera for the two species but in the opposite order. This reversed use of nomenclature was followed by Donkin (1985). Husson (1978) ignored the clear-cut description of Fischer's first species, *T. pecari* ("T. corpore nigro, maxilla inforiore alba") and overemphasized the importance of Fischer's use of "*Sus tajassu* Linn. Gmel." (a misspelling of *Sus tajacu* L.) as a synonym. Fischer's synonyms for both his *T. pecari* and his second species, *Tayassu patira* (clearly a collared peccary from the description), contain many references to collared peccaries but include the correct Guarani vernaculars from Azara (1801) of "Tagnicati" for the first species and "Taytetou" for the second species. Following Recommendation 69B (2) of the International Code of Nomenclature (Ride et al., 1985:135) we consider Fischer's unambiguous description of *T. pecari* overrides the imperative of virtual tautonymy and that *S. tajacu* L. is not the type species of the genus *Tayassu* Fischer.

Populations of the white-lipped peccary over most of the range appear to be stable at present (Mayer and Brandt, 1982). However, this species is known to thrive only in wilderness areas (Alvarez del Toro, 1952; Idiaquez, 1978; Sowls, 1984). Critical untouched habitats of the type needed by the white-lipped peccary in Central and South America are disappearing at a rapid rate (Ojeda and Mares, 1982; Sowls, 1984). White-lipped peccary populations have become rare or locally extinct in both southern Mexico and northern Argentina since 1900 (Donkin, 1985). The future survival of this species will depend on whether or not sufficient suitable habitat can be preserved (Alvarez del Toro, 1952; Idiaquez, 1978; Sowls, 1984).

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